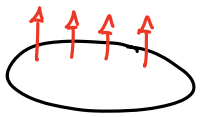
Taylor Larrechea
Dr. Middleton PHYS 132 HW

Ch. 26 P. 50
Ch. 27 P. 24 & 26

Chapter 27

27.P.24

$$\vec{E} = \frac{\eta}{\epsilon_0} \qquad \eta = \frac{Q}{A}$$



$$\vec{E} = \frac{\eta}{\epsilon_0} \qquad \epsilon_0 = \frac{c^2}{nm^2} \qquad Q = N/C$$

$\vec{E} = 2000\ N/C$

$\epsilon_0 = 8.85\times10^{-12}\ \frac{c^2}{nm^2}$

$\epsilon_0 \cdot \vec{E} = \eta$

$\eta = 1.77\times10^{-8}\ C/m^2$

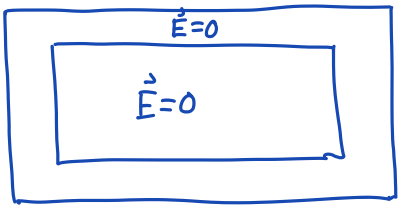
27.P.26

$\vec{E}_3$ should be zero because the conducting box

$\vec{E}_3 = 0$

$\vec{E}_2$ the charges aren't moving ∴

$\vec{E}_2 = 0$



$$\eta = \frac{Q}{A}$$

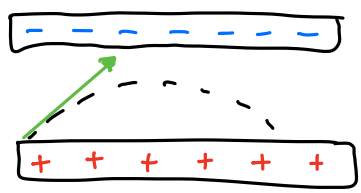
$$\vec{E} = \frac{8.0\times10^{-9}\ C/m^2}{8.85\times10^{-12}\ \frac{c^2}{nm^2}}$$

$5.0\times10^{10}\ electrons/m^2 \cdot 1.6\times10^{-19}\ C/electrons = 8.0\times10^{-9}\ C/m^2$

$E_3 = 0 \quad E_2 = 0 \quad E = 904\ N$

Chapter 26

26.P.50



$$\vec{E} = \frac{\eta}{\epsilon_0} \qquad \eta = \frac{Q}{A}$$

$e = 1.67\times10^{-19}\ C$

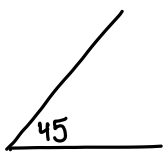
$m_e = 9.11\times10^{-31}\ Kg$

a.)

$v_f = v_0 + a\Delta t$

$x_f = x_0 + v_0\Delta t + \frac{1}{2}a\Delta t$

$v_f^2 = v_0^2 + 2a(\Delta x)$



$0.04m = 0cm + 3.5\times10^6 m/s(t)$

$t = 1.1\times10^{-8}$

$x = 5.0\times10^6 m/s\ \cos 45$

$= 3.5\times10^6 m/s$

$y = 5.0\times10^6 m/s\ \sin 45$

$= 3.5\times10^6 m/s$

$V_{y1} = V_{y0} + a_y\Delta t$

$ma = qE$

$\frac{ma}{q} = E$

$0 = 3.5\times10^6 m/s + a_y(5.5\times10^{-9}s)$

$\frac{-3.5\times10^6 m/s}{5.5\times10^{-9}s} = a_y \qquad a_y = -6.4\times10^{14} m/s^2$

$$E = \frac{9.11\times10^{-31}Kg(-6.4\times10^{14}m/s^2)}{-1.67\times10^{-19}C}$$

$E = +3.6\times10^3\ N/C$

$V_1^2 = V_0^2 + 2a\Delta y$

$-V_0^2 = 2a_y\Delta y$

$\frac{-V_0^2}{2a_y} = \Delta y$

$\Delta y = 0.01m$

$a_y = -6.4\times10^{14}\ m/s^2$

$y = 0.01m$